

# COMMUNICATING *Together*

A Quarterly Magazine About Augmentative  
and Alternative Communication

Vol. 3, No. 4

December 1985





# PHONIC EAR AND BLISSYMBOLICS COMMUNICATING TOGETHER!

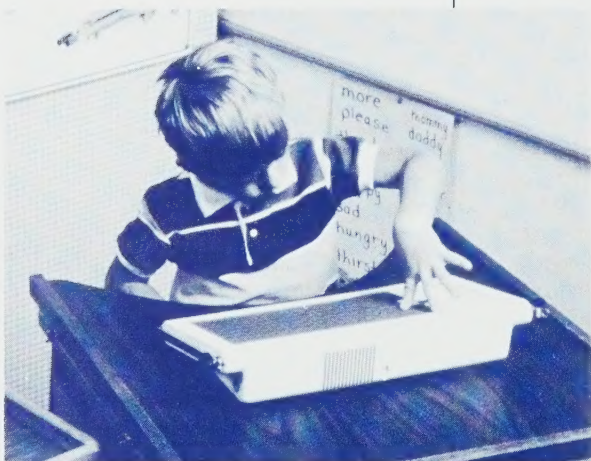


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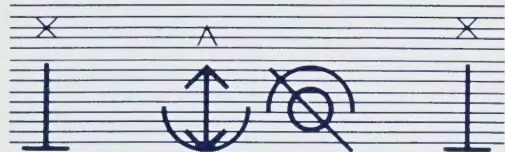
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# COMMUNICATING together



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*Communicating Together* is published quarterly as a means of sharing the experiences, systems and techniques of nonspeaking people with their families, communities and the professionals who work with them. Special attention is given to the nonreader's augmentative communication system and the role of Blissymbolics.

**The Blissymbolics Communication Institute** was established in 1975 to facilitate the use of Blissymbolics as a communication system for nonspeaking persons around the world.

**BCI Affiliates and Information Centres** are situated in

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Through BCI and its affiliates, over 8,000 instructors have been trained world wide.

**Blissymbolics** is a meaning-based, augmentative communication system offering vocabulary, structure and strategies to stimulate communication and cognitive development. It can benefit persons of all age and intellectual levels who have the potential and opportunity for interactive, functional communication. Blissymbolics can be used independently, with a variety of picture systems and technologies, or as a complement to words and spelling.

Blissymbols used herein are derived from the symbols described in the work *Semantography*, original copyright © C.K. Bliss, 1949.

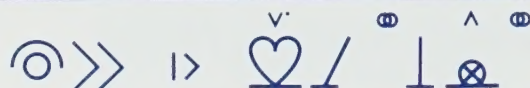
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# "Tips" from the Travel Weary



by Alan King  
in collaboration with Scott Palm  
and Dick Thomas

*Alan King and Scott Palm are members of the Go Getters Club in Seattle, Washington. Last fall, accompanied by Dick Thomas, they attended the ISAAC conference in Boston, Massachusetts. The following is an account of their adventures in travelling to this meeting.*

Following our trip to the ISAAC Conference, at MIT, in October, 1984, we found that we were able to entertain our friends for hours with our adventures. We have taken some of the more memorable situations and constructed the following as fair warning and light hearted tips for anyone who is contemplating travel and is disabled, or travelling with someone who is. There is no doubt that we have been very spoiled by the accessibility in our home city of Seattle and, even though our trip was satisfying and exciting, in many ways we did have our moments.

The first hurdle is air travel. Boeing, Lockheed, and other airline companies, in their infinite wisdom, have designed airplane aisles for small children and adults who have graduated from the Richard Simons' School for the Terminally Thin. All other passengers need to be well greased to move from the entrance to their seat. The next obstacle occurs if you do not have an aisle seat. Being double-jointed at the knees would greatly aid in this endeavor. When you are physically disabled, however, these minor inconveniences almost appear laughable.

The first treat is the use of the "aisle chair". The chair, obviously designed with the physically disabled passenger in mind, meets everyone's needs: a seat 14 inches from the floor, no sides (so no matter what your size you fit), no brakes (so it moves easily), and a large 12-inch-by-12-inch seat. All one needs to deal with is an "overhang" problem and the opportunity



*Authors at the ISAAC Conference, Boston.*

to practice your balance skills. Airline staff then efficiently whisk you down the aisle, in a tilt back position to orient you for take-off. The next challenge invariably comes when you arrive to your seat and discover you are facing the wrong way. After a conference with airline attendants, the pilot, and airport housekeeping staff, you are snugly strapped into your seat with orders not to move. Dignity stayed in the airport.

Due to the process for aiding the disabled passenger on and off the plane, routes to and from your designation are designed to allow airline staff several opportunities to practice. Our original route from Seattle to Boston and return was conveniently laid out to include Dallas and Atlanta. To add excitement to the "See America" plan, we were to change planes at each stop. For the wagering public this also increases the odds for lost and/or damaged luggage.

The policy of the airlines for the disabled passenger is "first on, last off". When you need to change planes, and there has been only a 20-minute allowance between flights, panic runs rampant. In this scurry, part of our carry-ons while

returning home at the Denver Airport gave up and went on to San Antonio never to be heard from again.

Mealtimes become another ego-building experience. Airplane staff operate under the philosophy that if your body does not work properly neither does your hearing or mind. To compensate for this, they ask everyone else on the plane, but you, what you would like to eat. Apparently asking the disabled passenger is a breach of policy. This, however, may be a moot issue, as one needs teeth like razors to chew airline food. Those with special diet needs should eat heartily before they leave and pray for a short flight.

If you hold a membership in the IBBC (Itty Bitty Bladder Club) airline travel over two hours is absolutely out. Should you be able to get to the plane's restroom, getting into it and using it, particularly if you require assistance from an aide, will make you a public spectacle in more ways than one.

Airline policies for power wheelchairs were obviously designed by a government committee. Our particular airline did not require us to use special batteries and gave us



the following simple directions:

(1) Remove batteries from the power wheelchairs. (2) Disconnect all wires. (3) Tape down all caps. (4) Pack batteries in a water proof container, with newspaper to absorb any spills. (5) Mark container identifying contents, your name, your address, and which end should remain upright.

The weight came to about 50 pounds per battery. It was great fun to watch them lift the batteries onto the conveyor belt at the check-in counter. Ticket takers at the check-in counters and baggage handlers were subsequently issued a supply of trusses. The one thing they forgot to tell us was that baggage handlers had not been blessed with the ability to read or follow arrows. At each destination, our wheelchairs were cheerfully brought to the plane doorway in 24 pieces, stacked for easy assembly. Batteries were conveniently found in the baggage claim six miles away in unrecognizable containers, upside down, going round and round on luggage turntables. Those battery acid holes in the baggage claim areas of the Boston and Sea-Tac airports will forever mark our presence.

Boston-Cambridge is one of the most beautiful areas our country has to offer. The citizenry made us feel very welcome, and from M.I.T. personnel to waiters and salespeople, they went out of their way to help us see their cities and enjoy our stay. Unfortunately, city planners seem to be unsure what to do with people in wheelchairs.

After traveling about a third of this nation's historic Freedom Trail in downtown Boston, we concluded that a trip, by wheelchair, down the original Oregon Trail with Lewis and Clark would have been less challenging. Our founding fathers and Boston's city fathers are obviously ambulatory. The latter also appear to have a warped sense of humor. Why else would someone go to such expense, to play "gotcha" with wheelchair bound tourists, by putting a single curb cut at an intersection? In addition, the absence of ramps into any of the historic sites made the venture truly memorable.

"The Ride", Boston-Cambridge's answer to accessible city travel,

challenges the mind and body of even the most stout hearted. Their only saving grace is their drivers, who showed us great respect, consideration, and courtesy. "The Ride" system, we discovered after arriving, is designed to take you to where you need to go or return you to your place of residence. The operative word is "or". What you do to go in the other direction will keep you from being bored and speed up the aging process.

While on vacation, just like at home, nature continues to call. The lack of accessible restrooms (or the nearest ones being in the next block or in an inaccessible building) has the potential to turn a simple call into a scream for mercy.

One of the most entertaining evenings in Boston was at Quincy Market. We westerners had heard stories about downtown traffic versus pedestrians in major eastern cities, but had never experienced them. We learned many new manual signs and had our vocabulary expanded while watching the best "R" rated comedy as we watched the traffic.

Last but not least, we were very lucky to have an outstanding conference coordinator and staff to work with at M.I.T. We learned that coordination skills are secondary to a sense of humour and make the difference between a good coordinator and an outstanding one. M.I.T.'s coordinator deserves an A+ on all accounts. After one particular rough day in trying to help us with transportation, her husband called to see what she wanted for dinner. She responded with one word, "Kahlua".

Even though we had some hardships, we don't want to discourage our disabled friends from traveling. So we would like to leave you with some hints which may help future travellers.

(1) Take manual wheelchairs. If all else fails, you can travel by taxi in any city. We found that most taxi drivers are helpful and considerate. This also eliminates the airline battery problem and results in less time reconstructing your wheelchair when you arrive. This will also reduce problems when there are not fully accessible restrooms available.

(2) Get a written commitment from someone in authority if you plan to use a transportation system in the city you are visiting. Have them explain in detail what they will and will not guarantee to provide.

(3) Before you go, write the tourist bureau of the city you are visiting and request a guide to accessible attractions.

(4) If you are attending a conference, make sure the conference is informed of your special needs in detail in advance. This will avoid unexpected dieting, an inability to attend planned presentations, and possibly affect the location of some of the sessions. It will reduce your frustrations and that of your hosts. We have found out people will make an honest effort to accommodate your needs.

(5) If you have special diet needs, pack food for your airline travel. This will guarantee some food for your trip.

(6) Whenever possible, avoid flights which require you to change planes enroute. If this is not possible try to allow adequate time between plane changes, and make sure the airline is fully informed of your needs.

This is no guarantee, but it helps.

(7) Don't let airline personnel rush you. Allow yourself enough time to make sure what you carry on, you also carry off. Take only what you absolutely need. A checklist for both carry-ons and check-ins could be of great assistance.

(8) If you use adaptive equipment, i.e. an expensive augmentative communication system that cannot be carried on the plane where you can guard it, get a written agreement of responsibility from the airlines. This is also important if you must take a power wheelchair.

Happy travelling! The effort is worth it. □





# Family and Community



## So Long, Camp

by Andrew Murphy



*Andrew Murphy of Toronto has been communicating with Blissymbols for several years. In this column, appearing in each issue, Andrew and his father Mark share their experiences and those of other families with the special perspective of people who communicate in different ways.*

I just came back from my last summer at Blue Mountain Camp. I had a great time doing many things and made new friends with other campers and the counsellors. This year we even had a newspaper and the following was my contribution, prepared with the help of my counsellor, Scott Bond.

I have been going to camp for eight years. Mom makes me go. Mom says it is good for me. I think camp is different. Clare, the camp director, thinks I need a holiday from the city. I think the opposite. I have gone to many camps and I find that there are many different kinds of people at each camp. I make many good friends at camp. I like playing games outside. They are different from in the city. For example, many are running and chasing games that many children play.

I eat small meals and I get skinny. The counsellor does not know how to feed me, but he is learning.

Soon I will be moving to another city. I'm going to go to Florida. Because of this I will not be coming to camp next year. I will miss camp and a lot of the people here. I'd like to visit sometime in the future.

\*\*\* \*\* \*

Earlier in the summer, along with Kari Harrington and Ann Running, we were able to meet with a group of Blissymbol teachers to tell them our experiences about learning how to read. Since I spent so much time learning how to use Blissymbols, I am somewhat behind in my reading and have spent a lot of time trying to catch up. We had an opportunity to tell the teachers what we liked about learning to read. I would like to share some of our suggestions with you in case you are helping nonverbal students to read.

1. Make reading lessons short and interesting — 30 to 40 minutes.
2. Introduce words early by replacing symbols with words.
3. Make reading a priority over

other things, e.g. new equipment, swimming, movies, etc.

4. Work with short sentences.
5. Use big print.
6. Be consistent with teaching methods.

It is good that the teachers want to hear what we think will help us and others learn better. We always enjoy it and thank them for giving us the opportunity.

Yes, I will be moving to Clearwater, Florida, in October. It will be a big change for me and my family. I will have to make new friends and go to a new school. I know they have teachers who know Blissymbols, but will they be able to help me with my computer and my other subjects? It will be a real challenge and I will let you know how it goes.

Even though I will be living in Florida, I hope to continue to write this column. Please help by writing to me and letting me know what is happening in your life. □

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## May Dang Speaks Out

by May Dang

*The following article is reprinted with permission from Image, Winter, 1984 — the publication of The Kinsmen Foundation of British Columbia.*

May Dang is a delightful and joyful human being who lives at Pearson Hospital in Vancouver. Her zest for lively and intimate friendship is as strong as the disease which disables her body — ALS, amyotrophic lateral sclerosis. ALS progressively paralyzes one's body, muscles waste away, limbs become useless. ALS does not, however, affect one's mind, or one's heartfelt yearning to still be the kind of person one always was. The Kinsmen Foundation will often do a story on people it helps. May wrote her own story.



We all take our speech for granted, but when one loses it, it is only the beginning of discovering the true meaning of communication. One's other senses become more acute. In my case, I listen more intensively and I find myself much more observant. No matter how extensive one's speech impairment is, there is definitely a way to communicate. There is one young lady who has no mobility at all. She communicates by blinking twice for "yes" and once for "no".

When I gradually lost my voice, I started with an alphabet board, spelling out the words by pointing to the letters. Then, at Pearson Hospital, the occupational therapist made me a Blissymbol board with the meaning printed below each symbol. Now I use a board with phrases printed on it. The board is very small to accommodate my very limited range of movement.

There are many excellent communication machines on the market. Ms. Margaret McCuaig of the Kinsmen Rehabilitation Foundation (KRF) often brings them in to the hospital. Unfortunately, I don't have the strength to even push down buttons or use a joystick. But Margaret has been a great help. She assisted me in composing one of my word boards.

Then, the KRF loaned me a POSSUM typewriter. I used the POSSUM for almost six years. It

was a machine which needed repairs to it, now and then. I compared it to my basset hound, awkward, cumbersome, and slow, but it slowly grows on you. It quickly became my "lifeline to sanity".

The KRF has now equipped me with a Tetra Scan II attached to a computer. About a year ago, I saw the Tetra Scan machine being demonstrated. As the name implies, a series of lights scan across a ten-inch by eight-inch rectangular box with a different kind of keyboard. A set of eight lights flash through eight vertical rows. When the lights come to the needed row, I release my finger-control and then one light scans the row until it reaches the letter I want and I tap my control once.

Everything I type (one-finger-style, a feather-light touch on a switch) is transposed onto the computer screen. With this machine, I am able to store any important documents or correspondence. Moreover, I can print more than one copy. Being able to correct a mistake, without asking for assistance, is pure pleasure! It has one feature which I find most practical: the programming of often-used sentences and addresses. Sometimes I might have two or three letters half written. I can then switch from one to

the other for a refreshing change of pace.

Due to the many features of the Tetra Scan, it stands to reason that it will take much more time to commence and complete my typing. I find it a bit more taxing because it requires much more concentration and one's reflexes have to be quick.

When I first saw this machine, it was Margaret who suggested that I switch over, but I was "happy as a lark" with my POSSUM typewriter — leave well enough alone. In July, the space bar stopped working. Simon Cox and Rick Van Heyst (KRF technical aids technicians) were on holidays. I was literally lost without the use of a typewriter for a month.

When Simon finally came in to check the machine, he shook his head, stating that it would take a while to fix and that parts were difficult to get. He subtly hinted that the machine had seen better days, that it was old and obsolete. For a minute there, I thought he was referring to me!

**This section of  
Communicating Together  
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He suggested using the Tetra Scan. I didn't need a memory bank because I photocopied all my important papers and I was going to ask him if I could have a correct-O-ball for the typewriter. To say the least, I wasn't too keen on the Tetra Scan.

Within a week, everything was set up. As Simon spoke about the many functions it would perform, I realized that it would be a stimulating challenge for me. Meanwhile, I threw many curves at him, such as whether or not the new machine had the many features that my old machine offered.

I needed an on-off switch, an alarm system and a printer into which I could put special notepaper. He provided a solution for everything and he took the time to answer my many questions. If there was something wrong with the computer, he would stop by after his

regular working hours to check it. If he was so concerned, I felt that nothing less than 100 percent on my part to learn all about the computer was needed.

I took the manual home every weekend until I finished reading it. Practicing for two hours every day was not uncommon for me. Without any reservation, I can say that Simon generated the interest and motivation in me through his knowledge and enthusiasm.

Needless to say, these machines are extremely costly. All my friends know about the benefits I receive from the KRF and they all donate to the Mother's March fund-raising drive. One would think that the provincial government would financially support such an organization whose prime objective is to help people help themselves. □

## Join ISAAC Now

The International Society for Augmentative and Alternative Communication (ISAAC) offers four types of memberships: (1) Student Membership (2) Active Membership (3) Contributing Membership (4) Corporate Membership.

Membership in ISAAC includes a subscription to *Communication Outlook* and the *ISAAC Bulletin*. As well, members are entitled to reduced rates for the *Augmentative and Alternative Communication Journal (AAC)* and *Communicating Together*.

For membership application and other information about ISAAC write: ISAAC, P.O. Box 1762, Station R, Toronto, Ontario, Canada M4G 4A3

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by Mary Blake Huer, Ph.D.

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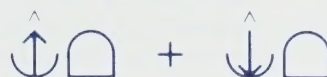
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# Teaching and Learning



## Augmentative Music: Symbol-Aided Singing

by Caroline Musselwhite



*Caroline Ramsey Musselwhite has a doctorate in speech-language pathology with a minor in special education. She currently provides direct services to severely disabled children at the Irene Wortham Center in Asheville, North Carolina. She also provides consultative services and lectures in the United States and Canada. Dr. Musselwhite has co-authored two textbooks, including Communication Programming for the Severely Handicapped with Karen St. Louis. She has recently published Songbook: Signs and Symbols for Children.*

Music, including singing, is one highly typical activity in preschool or primary programs for children without disabilities. In fact, it would be difficult to imagine an early childhood program that doesn't include singing! However, for many special needs children, especially nonspeakers, singing is limited or nonexistent. This is most unfortunate, as augmented music in the form of symbol-aided singing can be an exciting part of an early childhood curriculum for symbol users. Singing can offer both pleasure and learning opportunities for all children, even if the

"singing" is not done in the traditional manner.

### Expected Benefits of Symbol-Aided Singing

While singing can provide benefits to all children, special opportunities are available to symbol users.

*Socialization:* Joint participation and turn-taking can be built into songs and enjoyed by nonsingers as well as singers.

*Skill learning:* Songs can be written or adapted to support goals in a variety of areas, such as communication, motor and cognitive development. For example, children can be given opportunities to use a variety of communicative functions, such as requesting or commenting on objects (eg. "Look at Katie's picture"). These goals can be achieved through communication board use or speech. Sound production can also be encouraged through songs, with songs written to support the phonemes of a language. As examples, I have written simple songs representing 18 English phonemes, and related to familiar objects (eg. "p" for a boat sound).\*

*Symbol learning:* Introduction or generalization of symbols can be accomplished in an enjoyable manner via symbol-aided songs. Since repetition in music is highly normative, children have opportunities to repeat words/symbols in a meaningful context.

*Mainstreaming:* Songs can provide an excellent link between nondisabled children and special needs children. The nondisabled peers can be taught target songs first, and can serve as excellent peer models. Interactive songs allow multiple opportunities for modeling behaviours such as turn-taking or responding to questions. In a reverse format, a symbol user can be taught a symbol-aided song, then can serve as an assistant "teacher" for her/his nondisabled peers, allowing

them to recognize her/his competence.

*Adult symbol learning:* An unexpected by-product of augmentative music may be "painless" symbol learning by able-bodied adults involved with the symbol user, such that the adults learn a core of functional symbols.

### Selecting or Writing Symbol-Aided Songs

When introducing symbol-aided singing, song selection is an important consideration. It is crucial to give the child success from the first experience. This may require modifying songs, to allow for simpler symbols. In many instances, it will be necessary to develop songs especially suited to children who have access to small vocabularies and indicate symbols slowly. Several of my "Rules for Song-Writing"\* are particularly relevant to writing songs that will be symbol-aided.

*Rule #1:* The song should have less than 10 different target words (the teacher may choose not to have symbols for function words such as articles). This will make the vocabulary more manageable for young children or children who indicate slowly.

*Rule #2:* Use simple, familiar vocabulary, with words that are important learning goals. While this rule appears simple, many traditional children's songs (eg. "Twinkle, Twinkle, Little Star") do not follow it. This will help ensure that the experience is successful and provides opportunities for learning or practicing new concepts.

*Rule #3:* The words should be highly repetitive. This helps to reduce overload and allows maximum use of a limited vocabulary. Experience has shown that this is related to the ease with which children learn a new song. Remember, repetition is normal in music!



**Rule #4:** Include audience participation during or after each song. This allows the introduction and generalization of target concepts and skills. For example, after each chorus of "Open Box", one child gets a chance to choose an object out of the fun box. This also makes it appropriate to sing the same song several times in one session, allowing for extra practice.

### Strategies for Teaching Symbol-Aided Singing

Singing should not be restricted to the 20-minutes-per-day "Music Time", but should extend through many activities. For example, songs are an excellent way to get and maintain children's attention (eg. "Look at Taylor's Hat" to comment on actions or "Walking, Walking, Walking, Yes" as a child takes her first steps) or to give instructions (eg. "Get the apple and put it in" as the child operates an object-in-the-can switch). Songs can be shared with parents through a Song-of-the-Month program, to assist in home carryover. Support personnel such as physical educators can incorporate songs into their activities. This can provide an opportunity for involvement of children who must wait their turn as others are helped to perform activities (eg. "Look at Matt, see what he does, jump, jump, jump"). At the Irene Wortham Center in Asheville, North Carolina, augmentative music has become an integral part of the adaptive swimming program, with activities related to specific songs (eg. "Lie back, lie back and touch your toes" to encourage students to float on backs with toes in the center).

General training strategies will help children to learn songs and symbols more rapidly. Perhaps the most important technique is to slow the tempo, since symbol-indicating requires more time than singing. This can be difficult to remember, especially when using a familiar tune. The use of nondisabled peers as teachers is another highly successful training strategy. If the class is not mainstreamed, an exchange project can be initiated. For example, a program for preschool special needs children can arrange

alternating visits with a regular preschool, in which music serves as common theme between the two groups. The strategy of delay can be very powerful for teaching a wide variety of skills such as turn taking, labelling, or responding to a request. This consists of setting up a situation, then allowing a set pause time and looking expectantly at the children. For example, in the song "See baby sit", a pause can be interjected prior to each location, allowing the children to fill in the label (eg. "See baby sit, on the ... table, see baby sit, on the ... floor").

Specific strategies will be needed for symbol-aided singing. The following ideas are summarized from Musselwhite's book, *Songbook: Signs and Symbols for Children*\* and from Brodsky's manual, *Blissongs: Augmentative Singing for the Non-Verbal Multi-Handicapped Client*\*\*.

Brodsky identifies three formats for translation. "Literal translation" requires finding or creating a symbol for each word in a song, even if some words are outside the child's experience ("tuffet"). For very difficult words, a space may be left blank or printed in letters, so that the space will be retained without requiring the child to learn symbols that will not otherwise be needed. "Syntax correct" refers to retaining the specific grammar of the original song, while "content translation" does not require word-for-word translation as long as the meaning is clear.

Another issue in song translation is the grouping and spacing of symbols representing the lyrics of a song. Brodsky notes that a symbol user may point to a single word (spaced apart), coupled words (spaced together), or phrases of words (symbol groupings). This will be determined by features such as the user's symbol-indicating ability. For example, a person who points very slowly may need symbols grouped into phrases. The tempo/meter of the song is also important, as a fast song might require larger symbol groupings. For beginning symbol users, two strategies may help. First, only key words can be indicated, reducing the load on memory and speed of indicating. Second, very short, simple, repeti-

tive songs should be chosen or written to ensure success.

**Use specific doll techniques:** Large dolls can be excellent models, as their behavior is completely in the control of the teacher. For example, a doll can be provided with a headstick and helped to indicate appropriate symbols in time with the music. Dolls can also model skills such as filling in a delay or pointing to numbers indicating lines of a song.

**Teach Rhythmic Pointing:** Brodsky describes this as the act of pointing to the lyrics of a song in synchrony with people who are singing the song out loud. This can be done with a finger, hand, elbow, or appliance, or eye pointing can be used. For highly repetitive songs, the student can point repeatedly to the same symbols, rather than redrawing them.

**Use Song Strips:** A song strip contains the symbols needed for a particular song or for a line of a song. For a song in which the words are changed on each line, a 2-foot-by-6-inch plexiglass strip can be used, with plastic recipe sleeves attached at intervals by sticky-back intervals. As the verse is changed, new cards can be inserted into the plastic sleeves, to illustrate the new verse.

### Summary

Singing is such a delightful form of expression, that it should not be denied to anyone who is aware of its existence. Through symbol-aided singing, children who are not able to speak can become participators rather than onlookers. The opportunities for education, enjoyment and expression through music are boundless. Let's spread the word and music! □

\*Musselwhite, Caroline Ramsey. *Songbook: Signs and Symbols for Children*, 1985. Distributed in Canada by the Blissymbolics Communication Institute. Available in U.S. from: Caroline Ramsey Musselwhite, Irene Wortham Center Inc., 916 West Chapel Rd., P.O. Box 5655, Asheville, North Carolina, 28813.

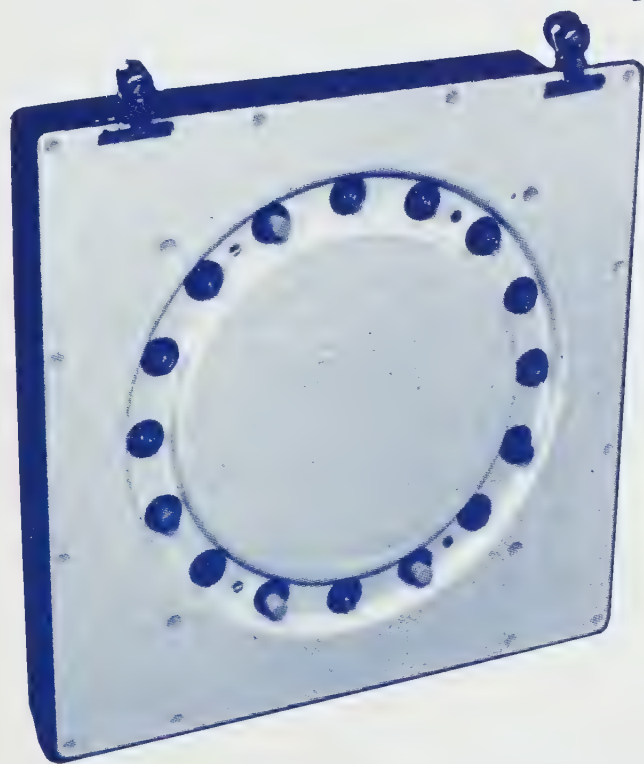
\*\*Brodsky, Warren. "Blissongs: Augmentative Singing for the Non-Verbal Multi-Handicapped Client," 1983. Unpublished Manual, Warren Brodsky, Sderot Ein Tzurim #15, Talpiot, Jerusalem, Israel.



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# Machines, Computers and Things



## Bliss to English Translating Device

by Rachel Zimmerman

*Rachel Zimmerman, a Grade 7 student in an enrichment class at St. George's Public School in London, Ontario, has produced a computer based Science Fair project dealing with the use of Blissymbolics. Rachel's work was good enough to win the second place Silver Medal in Junior computers at the Canada-wide Science Fair recently held in Cornwall, Ontario. The following is Rachel's description of her project.*



*Rachel and her computer program.*

### Introduction to the Problem

Blissymbolics is a language that is used by handicapped people who cannot control their muscles well enough to be able to speak or write. The Bliss user communicates by pointing to pictographic symbols on a board. Bliss is used in Canada, the U.S., Sweden, the U.K., Denmark, France, Norway, Australia, New Zealand, India and Israel.

After doing research on Blissymbolics, I wanted to adapt a computer for Bliss users. I interviewed a member of the Blissymbolics Communication Institute, and she indicated that very little computer software is available for Bliss users, and what they have is inadequate. The computer needs a paddle or a joystick, and can't be used by a person that uses a head-stick or mouth-stick to point to his/her Blissymbols. I decided that I would like to make it easier for the Bliss user to communicate with an English-speaking person without having to use any unfamiliar equipment.

### Outline of Experiments

My Bliss-input device had to resemble a Blissboard in appearance and use. It had to be large enough to hold a reasonable vocabulary and to allow for lack of fine motor co-

ordination. It had to be inexpensive enough to be practical for home, school and hospitals, and versatile enough to be adaptable to many brands of computers. The hardware had to be widely available with good service support.

I selected the Power Pad touch-tablet and Atari 800/XL computer for use with my Blissboard device because they met my criteria. I made an overlay for the Power Pad that had 100 commonly-used Blissymbols on it. I designed my program so that a teacher could easily replace the vocabulary when using different overlays. When a Blissymbol area is touched, the English word or phrase representing its meaning is displayed on the computer screen. Around the edges of the touch tablet, I added the alphabet, because in Blissymbols people's names are usually represented by initials. I also added "control areas" to start a new message, to rub out the previous symbol, and to print the complete message. The rub out has to be designed to remove an entire symbol-meaning with one touch because Bliss users think of the meaning of the symbols, not the string of letters it represents.

The Power Pad has 14400 points (.1 inch by .1 inch) that can be sensed. My program scans the touch tablet to see if it is being touched, and if so, to collect the x and y coordinates of the point being

touched. I had to group the points into clusters of 100 points to define Blissymbol areas large enough to accommodate the user's handicap.

### Summary of Results

To use my program, the Bliss user does the same thing he/she would do when using a conventional Blissboard. This is important because some Blissymbol users, because of physical or mental handicaps, take a long time to learn new skills. My program offers advantages over a conventional Blissboard. With the Blissboard, the person receiving the message must be in the same room to observe the user pointing out symbols. With my device, the message can be printed to be read later or mailed to a friend. Blissymbolics is not a grammatical language, but a language of concepts for getting ideas across. My program reflects this presentation of ideas. The reader interprets the message. For example, a Blissymbol message might say: I or ME (TO) WANT MUCH or MANY BOOK. The reader interprets this as I WANT MANY BOOKS.

### Conclusions Reached

My computer program has been a significant improvement over the paddle-oriented programs currently being used. Members of the Bliss-



symbolics Communication Institute in Toronto came to London to see my project, and they were very pleased with the application of the touch tablet to help Bliss users. They said that the ability to leave a written message would be helpful in many situations.

My Bliss input device is suitable for many recreational and educational purposes, such as vocabulary building programs, picture games, and controlling appliances by computer. I hope that in the near future my Blissymbol program will be used by handicapped people around the world. Currently I am working on a bilingual (French/English) version of my program. □

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## Technology Speaks

by Barry King

*Barry King is an editor of the "Speaking Out" segment of Echo On, the newsletter published by Phonic Ear. Last June he participated in the Assistive Devices Programme (ADP) Conference in Toronto, Ontario. He has kindly allowed us to print the address he prepared on his VOIS 140 for presentation at this meeting.*

May I introduce myself to you. My name is Barry King and I have the great pleasure of relating to you how the "Phonic Mirror Handi Voice" — VOIS 140 — has changed my life profoundly.

In these modern days, technology does indeed talk. The miracle of verbal speech, a gift that so many of us take for granted, has been given back to me through "state of the art" science.

Prior to the VOIS 140 becoming a part of my life and an extension of myself, my thoughts had to remain silent. A world of communication was denied me for a period of 10 years following a car accident. The frustration of being unable to express one's feelings out loud is a thing of the past; and you can be assured that I have most certainly made up for lost time.

When I was first confronted with the task of memorizing the vast array of three digit number codes to program the VOIS 140, I must admit that I was astounded, and to say the least, intimidated. But it is amazing what one is capable of achieving when the prospect of communicating through the spoken word is at the end of the rainbow. With constant practice and many mistakes, I have reached a proficiency whereby I am able to demonstrate on behalf of the manufacturer at conventions, seminars, etc.

The VOIS 140 has enabled me to enter into the mainstream of society, and I am now able to sit down and be heard. One of my greatest pleasures is talking to children of all ages. Today's young people are growing up with computers and accept them as an integral part of their lives. Their interest and curiosity about my machine is heart-



Barry King at his VOIS 140.

warming. They accept me as a person, and don't see a voice synthesizer. Educating them while they are young so they can form their own opinions about disability is one of my prime concerns.

I might add that my VOIS 140 has resulted in some amusing incidents, such as people thinking there must be wires leading from the machine to my brain or that I am a ventriloquist. Inevitably, people will ask "Why can't you talk?" and it seems such an inappropriate question when I have the ability to answer with my VOIS 140. The verbal clarity of synthetic speech has progressed vastly, and continues to do so.

Because the gift of verbal communication has been restored to me, I can perform such essentials as use the telephone; talk for myself in stores and restaurants; answer the time of day; debate publicly the urgency for the Assistive Devices Program to include the adult disabled; or just have a conversation.

Without my VOIS 140 and the many brilliant minds behind its development, I would not have the ability to speak out loud today. However, technology benefits only those who have the funds to obtain it. Without adequate funding available, the vast potential of many disabled persons will go unheeded.

Thank you for allowing me this opportunity of sharing my thoughts with you. □

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# Blissymbol Talk



## Additional Forms to Expand Pronouns

Many of you are already familiar with the pronouns which are found in BCI publications such as *Teaching and Using Blissymbolics* and *Blissymbols for Use*. Additional pronouns have been added to the Standard Vocabulary at the request of symbol users and instructors.

Masculine and feminine forms are now available in **first, second, and third person singular and plural**; the neuter form is available in the **third person singular and plural**.

### Additional Forms

#### Singular

##### I, me, myself

(man + 1:  
the first person  
[male] singular)

(woman + 1:  
the first person  
[female] singular)

#### Plural

##### we, us, ourselves

(man + 1 + plural  
indicator: the first  
person [male] plural)

(woman + 1 + plural  
indicator: the first  
person [female] plural)

##### you, yourself

(man + 2:  
the second person  
[male] singular)

(woman + 2:  
the second person  
[female] singular)

##### you, yourselves

(man + 2 + plural  
indicator: the second  
person [male] plural)

(woman + 2 + plural  
indicator: the second  
person [female] plural)

##### he, him, she, her, himself, herself

(person + 3:  
the third person  
singular)

##### they, them, themselves

(man/woman + 3 + plural  
indicator: the third  
person plural)

##### they, them

neuter plural  
(it + plural indicator:  
neuter plural) The form  
to be used when  
referring to things.

### Examples:

Symbol users now have several ways to express the same message:

A female can say:

I like you

OR

I like you

OR

I like you

(the form generally used)

(if the receiver of her  
admiration is male)

(if the receiver of her  
admiration is female)

### Symbol News

A complete list of pronouns is available in Appendix B of *New Symbols Added to the BCI Standard Vocabulary 1984*. This document also contains the new symbols for foods and animals. If you do not already have a copy, please send your request to me care of BCI. Your name will be added to our mailing list so that you will receive all new symbols added to the system in the future.

Claudia Wood  
Symbol System Co-ordinator



# Perspective



## Looking at Graphic Systems

by Shirley McNaughton



*Shirley McNaughton is Executive Director of the Blissymbolics Communication Institute. She has been involved in the field of augmentative communication since the early 1970's, initially as a teacher in the first Blissymbol program in Toronto, Canada. More recently she has participated in the growing field of augmentative communication as a founder and first president of the International Society for Augmentative and Alternative Communication.*

As a professional with longtime involvement in the field of augmentative communication, I have had the opportunity to observe the development of many former students. I have proudly watched many of them grow into capable young adults. I have had the privilege of sharing in decisions that have had profound positive effects upon their lives. On the negative side, I have also been forced to watch helplessly as life circumstances have deprived some of them of vital opportunities for personal growth.

Throughout the last decade-and-a-half, I have often wished that parents could have more energy after the heavy demands of caring for a

disabled youngster to fight for better educational and residential situations. (Though I well understand why the energy is lacking!) I have sometimes wished for teachers who would provide more academic substance and stimulation, and for speech pathologists who would inspire their young clients with the joy and wonder of language.

But I have never wished for a different system. I have always felt that my students, and the many other young nonspeaking people I have known, have been strengthened and enriched by having Blissymbolics as their primary augmentative communication system. Of course, being deprived of speech, they experience a severe disability! But, the findings of our 1974-1975 study have been replicated for many individuals. Whenever students were fortunate enough to have an adequate assessment, supportive families, caring teachers and broad-thinking speech pathologists, the system of Blissymbolics served them well as a system to augment their other communication capabilities. Those who were fortunate enough to be introduced to Blissymbolics' many capabilities in ways that were fun and imaginative benefited socially, intellectually and emotionally. A graphic system with structure and depth was needed for these young minds to grow, and Blissymbolics served this role well.

Over the years I have looked with keen interest at the new picture sets and graphic communication systems that were being developed in the late seventies and the early eighties. I appreciated and welcomed the thinking of Faith Carlson as she developed Picsyms for the preschooler, and the rationale presented by Ina Kirstein in developing the Oakland Picture Dictionary to meet the special needs of the population she served. I understood the intent of Subhas Maharaj in developing a symbol set directed toward the severely retarded and the pragmatic considerations of Don Johnston and Roxanna Mayer-Johnston in providing picture sets

that would facilitate the construction of picture boards.

In recent years, however, I have become increasingly disappointed that we have not developed ways of describing and classifying graphic stimuli, to enable instructors to distinguish systems such as Picsyms and Blissymbolics from picture sets, photographs and line drawings. I look to responsible research to help clarify this evaluation process in the future. I have confidence that, as our field matures, studies will be directed toward providing the knowledge we need in order to make informed judgements about the many published graphic systems and sets. If the Blissymbolics Communication Institute is successful in obtaining funding, a descriptive protocol will be developed that will contribute to the field's base of knowledge pertaining to all graphic systems. We must move well beyond comparisons that relate to but one characteristic. The evaluation of graphic communication systems requires consideration of many factors, not the least of which is the extent to which the components of the system or set relate to each other.

Our current lack of information can have very damaging effects upon the instructional programs for the nonspeaking person. Instead of receiving objective and documented information, instructors receive unsubstantiated promotional claims. When pictures are presented as the learner's "voice", as allowing the individual to "talk to anyone", as "stimulating the user's mind", as requiring only that the "trainer go through the vocabulary and verbally label each item", I have strong concerns. Instructors must be given information about the varying levels of communication that are possible with different graphic stimuli. For many students, pictures are not enough. They are limited to representing the concrete, the here and now. They present the specific. Each item stands alone. Nonspeaking persons capable of growth and development deserve much more.

I have concern, as well, when I



learn of symbols or pictures being selected individually for each concept on a communication board — with no consideration to consistency of the graphic representation or to the contribution of a communication system's strategies and interconnected components to the user's cognitive development. This is not intended as criticism of carefully planned communication boards that combine pictures with Blissymbolics in order to quickly expand vocabulary. The addition of pictures for many specific nouns can effectively increase the vocabulary. A larger vocabulary contributes to more satisfying communication, paving the way for the use of strategies and other capabilities of the system. The Blissymbol equivalents for each picture can be learned as required, for the recording of messages and more extensive written communication (e.g. Blissapple).

I am very disappointed when I hear "Blissymbols are wonderful, but they're too difficult for my students". Many of today's successfully communicating young adults would never have been introduced to Blissymbols if we had had this attitude in the early seventies. We approached each youngster with how do I structure the learning situation, so this student can learn Blissymbolics. Once we assessed the student as showing the potential for Blissymbol communication, we took the responsibility to effectively teach it! Of course, Blissymbols are too difficult for some students and we must become ever more skillful in determining the capabilities required. But many more individuals could learn and benefit from the system than are now being introduced to it. When those students are being given pictures and line drawings with limited opportunities for language and cognitive development, we are depriving them of the broad stimulation and power that language gives to the nondisabled person. We are deciding that they do not deserve the highest level communication system possible. This concerns me very much.

All nonspeaking persons should be given the means to develop the most effective personal augmentative communication systems possible. They have a world of learning to

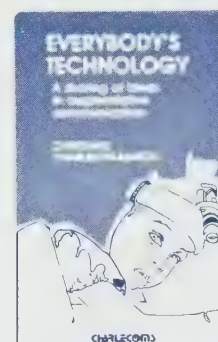
do. They deserve a full, rich system that provides opportunities — for interacting at many different levels; for playing with and enjoying language and symbols and meanings; for developing and examining concepts; for generating new meanings and procedures; for trying out different strategies and syntax formats. We should aim for the highest level. We know that communication is our most valuable human capability! Nonspeaking persons deserve individualized systems that show everyone they meet that they are interesting and aware persons who have ideas and wishes and important things to say. And they deserve time for instruction! They deserve planned experiences in language learning that allow them to develop to their full potential and to compensate in a wide variety of ways for their inability to speak.

We gave a comprehensive system and generous teaching time to our Blissymbol students in the early seventies. Those who had their system and their learning supported through the years have become confident, skillful communicators.

Those beginning communication programs today deserve even more. To our expanded knowledge of technology, interaction and intervention procedures, we must add a critical evaluation of the varying capabilities of different graphic representations. This information must be applied to the provision of quality programs, not to promises of quick and easy routes to language and communication.

My strongest hope is that nonspeaking persons and their family will place the highest demands possible upon the augmentative communication system they acquire and that every instructor will ensure that the learning environment they create facilitates broad and fluent communication and rich learning opportunities.

We must always remember what language and communication do for the speaking person. The augmentative communication student of the eighties should settle for nothing less. I look forward to the day when every nonspeaking person, family and instructor will demand the full way, not just the fast way. □



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# Sharing Ideas with Nora



"Sharing Ideas with Nora" is a forum for sharing information concerning all aspects of augmentative communication. Nora Rothschild, Consultant with the Augmentative Communication Service of the Hugh MacMillan Medical Centre, heads up a regular column focussing on readers' questions, answers, problems and experiences.

At the Augmentative Communication Service, use of phrases and sentences within graphic displays (see Core Vocabulary, *Communicating with Blissymbolics*, S. McNaughton ed.) has had a positive impact on communicative interaction. This strategy has reduced the demand on the non-speaking partner, while at the same time facilitating interaction with speaking partners, especially with unfamiliar speaking partners. It is much simpler to point to a commonly used phrase rather than to reconstruct these same phrases continually throughout the day by pointing to the graphic components. It is also possible to use many of the same ideas with a portable speech synthesis aid.

These sentences may be used with nonspeaking individuals using picture systems, Blissymbols or traditional orthography. It must be remembered that the actual phrase written above the graphic symbol or shown on a visual display is intended for a partner who is able to read the written sentence. The

nonspeaking individual using the system need only be cued for the meaning of the accompanying sentence. For example:

"Help me brush my teeth please"  
"Let's play on the swing"

I find that many facilitators are initially hesitant to use the technique of phrases and sentences. In order to provide a functional set of sentences, the facilitator must be familiar with the overall goal of the augmentative communication system. S/he must be a careful observer and be willing to take some initiative, be creative and be willing to spend a lot of time. In choosing the style of output, it is important to consider the non-speaking partner's personality, his/her cognitive level, the variety of speaking partners, etc.

Once concrete examples are presented, everyone seems more comfortable. I have therefore accumulated a diverse list of examples from a variety of our clients. These are intended as samples only. From the list it is hoped that readers will see the extreme individuality required. I have attempted to include a few alternate styles; eg. formal, polite, tactful, direct, and jargon or informal slang expressions.

There are a variety of ways of looking at and organizing these ideas. The following organization is presented as a means of facilitating thought processes only.

## Needs and Wants

*Discomfort.* These messages require urgent and immediate action. They should perhaps be marked to indicate this urgency.

I'm uncomfortable.  
I feel sick.  
My glasses hurt./Please fix my glasses.  
I'm in pain./Something hurts.  
Please lift me up.  
Please loosen the strap.

I need to be turned.  
My diaper is too tight.

*Problems.* These messages convey essential or pressing needs, but are not as urgent as the examples above.

I'm tired.  
Please help me blow my nose.  
I feel wet. Please change me.  
I'd like to have a rest.  
I can't hear the TV.  
Somebody is in my way.  
My wheelchair is broken.  
I want to be on the floor.

*Activities.* These messages convey a request about general and specific activities which the nonspeaking partner may wish to communicate. Each individual will naturally have different interests which will be reflected in the topics chosen.

## Cleanliness

I want to wash my hands and face.  
I would like to take a bath.  
Please brush my hair.

## Play

I want to play.  
Let's splash water and make bubbles.  
I want to sit on your lap.  
I want to use the computer.  
Let's play hide'n seek.  
I want to play in the sandbox.  
I want to ride my bike.

## Outings

I would like to go to a movie/shopping/ ...  
It's time to work.  
It's time for therapy/school/ ...

*Specific Situations.* These messages would likely be added prior to a specific, planned situation.

Thanks, I'm just looking.  
I'm looking for ...  
I take a size ...  
That's not the right colour/style.  
It's too big/small.

*Help.* These messages are frequent but specific requests for help.



Please turn on my TV/tape recorder/radio.  
 Please call my mother.  
 Please change the tape in my tape recorder.  
 Please read me a book.  
 Please change the channel.  
 I've dropped something.  
 Could you put that on my bulletin board?  
 Please mark my calendar.  
 Please turn my display.

*General Requests.* These messages are more general and flexible than the examples above.

I'd like some more.  
 Is there anything else on?  
 Please can you do something.  
 Please can you get me something NOW.  
 Please can you get me something when you get a chance.  
 I need help/Please help me.  
 Please, I have a problem.  
 Something is not working.  
 I want to go/see/ ...  
 I want to go with you.

## Social Comments

### *Greetings and Closings*

Hello. How are you?/Hi. What's new?/What's up?/It's nice to see you again./Nice to meet you.  
 Goodbye. It's been nice talking to you./Bye. See you later.

### *Negative Comments*

I don't want to do that./I don't feel like it.  
 It's none of your business.  
 I don't like that.  
 Get lost!/Leave me alone please.  
 I've had enough now.  
 Forget it!  
 That's a lot of garbage.  
 No way!  
 That's mine.  
 Please don't touch.  
 Don't do that.  
 You dumb-dumb./You're silly.  
 I'm not your friend.  
 I am not a child.  
 I don't care.  
 That makes me really mad.  
 It's so frustrating./I just feel uptight.  
 I'm scared silly.  
 I don't feel like doing anything.

*Positive Comments*  
 Oh wow, that's great!  
 I really enjoyed that.  
 It's so exciting.  
 I like that.  
 You're my friend.  
 That's fun.  
 That's my favorite.  
 I love you.

### *General Comments and Questions*

I know that.  
 I don't know.  
 You promised me.  
 That's difficult.  
 Come over here.  
 Where is it?  
 What's that?  
 Are you leaving soon?  
 When are you leaving?  
 What day is it?  
 What did they say?

## Interaction Strategies

*Initiation.* These messages are intended to grab the partner's attention.

What's wrong?  
 What are you doing?  
 What's your name?  
 Is it ready yet?  
 Do you remember ...?  
 Do you want to play?/Would you like to play with me?  
 Please talk to me./Let's talk.  
 Do you know what?/Hey, guess what?  
 I want to ask you something.  
 I want to tell you something./I've just thought of something.

*Repairs.* These messages request the speaker to repeat or clarify his/her message, serve to check on the listener's understanding, prevent communication breakdown and clarify misunderstood messages.

Huh? I beg your pardon?/What did you say?/Excuse me. Say that again.  
 Do you understand?  
 Please read aloud as I point.  
 I don't have the symbol but it's something like ...  
 I'll try to spell the word but I don't know the exact spelling.  
 I need a new symbol./I want a picture of that on my display.  
 I don't understand./I'm not sure what you mean.

Try another meaning.  
 That's not what I meant. Let's try again./Wrong. Let's start again.  
 Please guess.  
 It's my turn.  
 Wait.  
 I haven't finished.  
 Please don't interrupt.

*Feedback to Speaker.* These messages help to maintain the interaction.

Yes, go on.  
 Tell me more.  
 Is that so?  
 O.K.?  
 Why not?  
 Just because.

*Termination.* These messages indicate a desire to end the topic or the entire conversation.

That's the end of the message.  
 I've had enough for now./I'm finished./I don't want to talk any more.  
 Let's talk about something else./I want to do something else.

It is important to maintain a balance between the programmed sentences and the entire communication display. These sentences are in no way intended to be used in isolation but are to be used as part of a nonspeaking person's picture, Blissymbol, alphabet and word board displays. Though there are recurring phrases which we all use, most of our conversations include new ideas. Any programmed sentences must be incorporated into a customized augmentative communication display which also allows other non-standardized ideas to be communicated. I hope that as you design your own individualized sentences you will share them with us. □

**This section of  
*Communicating Together*  
 is sponsored by  
 the Tippet Foundation,  
 Toronto, Ontario.**



# International News



## An Irish Blisscamp

by Moira Morrin and Martine Smith

*Moira Morrin and Martine Smith are speech pathologists at the Central Remedial Clinic in Dublin, Ireland. This clinic caters to two-thirds of the cerebral palsy population of Ireland. They also act as consultants to other professionals who are implementing augmentative or alternative means of communication in Ireland.*

It began inauspiciously — a suggestion over coffee at an informal reunion of a group which had attended a Bliss course in Ireland. It resulted in a week-long camp for children from all over Ireland — Summer Blisscamp 1984, now already passed into Blisscamp 1985.

The motivation behind Blisscamp 1984 was two-fold. Firstly, children using Blissymbols in Ireland were few and scattered. This meant some children, particularly those outside Dublin, had little or no contact with others using a similar means of communication. A Blisscamp would bring these children together and help them to realise the social aspects of communication. Secondly, it was hoped that the camp would gain publicity and thereby increase public and professional awareness of augmentative means of communication, Blissymbols in particular.

Before this could happen, we had to get organised. Who would run the camp? The original impetus came from a group of therapists working in the area of cerebral palsy.

Fundraising activities were undertaken and support was sought from the main institutions dealing with the children — the Central Remedial Clinic, Dublin, and the National Association for Cerebral Palsy. Letters were sent to all the regional health boards, to everybody who had attended a Blissymbol course in Ireland and to other interested professionals. We were looking for children aged 6 to 15 years who would be suitable candidates for a

Blisscamp. Soon we had replies from more than enough eager children whose parents were willing to let them go.

The camp was to be live-in for one week. A suitable location presented itself in the form of Marino Clinic in Bray, Co Wicklow, a residential facility which is vacant during the summer.

Additional staff aid was sought from speech therapy and occupational therapy students and from volunteers. We achieved a one-to-one ratio of helper to participant. This meant that no staff member had to cope with the daily management of more than one child. At the same time each participant had a constant staff companion, thus minimizing the trauma of being away from the family for the first time.

The tone of the camp was set in our special Blisscamp song:

$\downarrow_1 \quad \hat{\Phi} \quad > \dots \gg \quad \hat{\Lambda} \quad + \quad \hat{\Lambda} \quad \heartsuit \uparrow$

We are here for work and play.

Following assembly each morning, the children divided into groups for therapy. Groups were arranged on the basis of skill in using Blissymbols, ranging from beginners to an advanced group. Each child was also checked for individual work and for work on computers or other communication aids.

Afternoons were devoted to fun. Outings included picnics, a trip on the DART (the new Dublin Area Rapid Transit), a visit to Dublin Zoo, and an exciting outing to the Amusement Arcade in Bray, where the children got a chance to ride on the ghost train and the bumper cars. Evening entertainment was provided by various music groups who gave voluntarily of their services. The last day of camp was sports day and everybody finished up with a treasure hunt, using clues in Blissymbols.



Darren Purdy and Neil Kelly at Blisscamp.

## The Second Camp

Feeling more confident the second time round, this year a visitors morning was held on the third day of the camp. The Minister for Education, Gemma Hussey, visited each group and talked to the children. Stephen Kavanagh, aged 15, used his 400 chart to tell her:

$\downarrow_2 \quad \hat{\Phi} \quad \hat{\Phi} \quad \heartsuit \uparrow$

You are beautiful.

Never miss an opportunity!

We used the Minister's visit to highlight the necessity of the introduction of classroom aides for individual non-verbal children attending ordinary primary schools. The isolation of these children is at present exacerbated because no provision is made for the use of augmentative means of communication in a normal classroom setting.



For the children, Blisscamps 1984 and 1985 provided an opportunity to gain independence through separation from parents. Blisscamp demonstrated the importance of developing independence from parents. Those there for the second time adapted far better than those who had never been away from home. It also gave the children a chance to renew old friendships and meet new people. For many of them, the outings provided an opportunity to see and do things they had never done before, and to experience Blissymbols in real communicative action.

For the staff, it was a chance to get to know the children properly. The experience left us with a much broader understanding of the daily management of physically disabled children, particularly how outside factors such as general health affect their ability to work in a therapy setting.

Other professional issues were highlighted. For example, very different chart organisation led to problems in groupwork. Also individualised vocabularies for beginners made group discussions extremely difficult.

It was all definitely easier the second time round despite an increase in numbers from 12 to 16. For next year, a move from a clinic to a more natural environment is being considered in order to develop the independence aspect of Blisscamp and to avoid the necessary routine of an institutional setting. This will probably necessitate smaller numbers but result in a more personal Blisscamp. The important thing is that Blisscamp now seems to be moving under its own impetus and is well on its way to becoming an established annual event. □

**This section of  
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## Publication Announcements



### Songbook: Signs and Symbols for Children

Written by Caroline Musselwhite, *Songbook: Signs and Symbols for Children* is a practical manual to the use of music/signing/symbols to promote learning for preschool children.

This book combines singing, signing and use of symbols (Picsyms and Blissymbols) for both disabled and nondisabled children. The songs and activities included in the songbook are intended to be integrated into the total experience of the learners, and not restricted to a designated Music Time.

Paperback	94 pages
1985	\$15.00 in Canada

### Communication Augmentation A Casebook of Clinical Management

by David R. Beukelman, Ph.D.;  
Kathryn M. Yorkston, Ph.D.; and  
Patricia A. Dowden, M.S.

For professionals and students in education, physical therapy, occupational therapy, speech-language pathology, engineering and psychology. This is a practical and informative book on providing communication augmentation services to nonspeaking individuals.

ISBN 0-88744-102-5	
Paperback	252 pages
1985	\$25.00 U.S.

## COMMUNICATION OUTLOOK

### Focusing on Communication Aids and Techniques

A Publication of the International Society for

Augmentative and Alternative Communication (ISAAC)

*Communication Outlook* is an international quarterly which provides a forum for individuals interested in the application of techniques and aids for people who experience communication handicaps. It is a cross-disciplinary information source as well as a reference for those wishing to contact others working in the field of communication enhancement.

*Communication Outlook* features regular sections on: commercially available aids, aids under development and components to build aids; interfacing and augmenting aids; new publications and resources; centers and groups involved in various aspects of communication enhancement; innovative methods, procedures, teaching strategies and uses of materials shared by readers; and advocacy issues, including new groups, strategies and successes.

The International Society for Augmentative and Alternative Communication (ISAAC) was formed to advance the transdisciplinary field of augmentative and alternative communication techniques and aids. Membership in ISAAC includes a one-year subscription to *Communication Outlook*. ISAAC offers Student/Consumer Membership for \$15, Active Membership for \$25, Contributing Membership for \$100 and Corporate Membership for \$500. For membership information, write ISAAC, P.O. Box 1762, Station R, Toronto, Ontario M4G 4A3.

For subscription information, contact *Communication Outlook*, Artificial Language Laboratory, 405 Computer Center, Michigan State University, East Lansing, Michigan 48824-1042, (517) 353-0870.



# Research and Publications



## Service Network

by Geb Verburg



*"Research and Publications" is written by Geb Verburg, who has been involved in the field of nonspeech communication since the mid-seventies. A cognitive scientist, Mr. Verburg is currently working as Research Associate in several research projects at The Hugh MacMillan Medical Centre investigating the use of microcomputers and the development of software and assessment tools for control and mobility.*

A person's ability to link unconnected events or ideas in a novel and sensible way is often taken to be a measure of creativity. This article could therefore be regarded as a test of creativity — yours, ours. The object of the test is to find the most practical, least restrictive, most integrated and most comprehensive (wholistic) model of service provision. Rather than start from one of several such models or philosophies that have been published recently (e.g. Levy, 1984), I have decided to start from scratch by listing some of the connected and totally unconnected elements that will affect such a model or that should be integrated in it. I will do no more than comment on trends,

point out issues and raise questions. The real work of putting these diverse strands together in a relevant and constructive model will be up to all of us. I would very much appreciate receiving your suggestions, solutions, plans.

### The Elements

The disjointed elements are:

- (1) A growing field of expertise viewed against the "life cycle of a scientific specialty"
- (2) A need for a wholistic, comprehensive approach
- (3) A personal but persistent sense that terms such as "nonspeaking", "augmentative", "alternative", as well as "habilitation" and "rehabilitation" have a negative and limiting connotation
- (4) A handful of unresolved and emerging service issues
  - community based support services
  - social isolation
  - need for basic information about disabilities
  - involvement of parents and clients in raising and formulating service and research issues
  - integration, coordination and dovetailing of service provision, funding and support

### The Life Cycle of a Scientific Specialty

Largely as a result of Thomas Kuhn's book *The Structure of Scientific Revolutions*, the development of science and specialties within it has come to be viewed as a growth process that follows certain developmental stages in its "life cycle". Augmentative and alternative communication, although it began with a strong applied clinical emphasis, appears well on its way along the typical developmental path of a scientific specialty.

De Mey (1982) in reviewing the process of the growth of science cites four stages. First there is the Pioneering Stage characterized by informal institutional forms, exchange of innovative documents

and preprints or by the initiation of new methods.

In the second or Building Stage, small symposia are organized; an "invisible" network of experts who keep in close touch emerges and research and applications gain momentum both in terms of quantity and quality.

During the third stage, the Stage of Internal Criticism, formal meetings and conferences are held and formal groups and societies are established; text books and domain specific journals are published. But also the number of anomalies, disagreements and conflicts (research-based and clinical) increase giving rise to internal criticism.

Finally in the fourth and last stage of development of the specialty, the Stage of External Criticism, the specialty is institutionalized through university and clinical service departments; output reaches its peak; and criticism from beyond the specialty or from split-off factions increases.

Augmentative and Alternative Communication (AAC) as a specialty has in its institutional form and social structure already entered stage three with congresses, a formal society, and its own journal. Up to now, the research and theoretical base is lagging behind, which delays the internal criticism. I am confident that research and applications of AAC methods and tools will continue to expand and that theories and more sophisticated intervention and treatment models will evolve. At the same time, I expect that the specialty will maintain its spectacular growth rate at the institutional level and that therefore the establishment of dedicated university (sub) departments will take place in the very near future if they have not already been formed. I would appreciate hearing about such departments or planned departments.

This imminent institutional formalization has implications for service provision. It has an impact on the roles played by different professionals and it will present a



unique challenge to the founders of these departments. Currently AAC activities may be carried out directly or indirectly by persons who are trained as speech-language pathologists, teachers, occupational therapists, engineers and computer scientists, linguists and psychologists. Each of these professionals brings her/his relevant knowledge and experience and his/her discipline's service model.

Can their multifaceted experience be combined and taught in a single department, should it be, and what will be that department's service mandate? Will one department be able to educate students in the marvellous scope that currently characterizes this field?

### Comprehensive, Wholistic Service

More than any other field I know, rehabilitation is a network of many disciplines. AAC is one link in the net, and a strong and vigorous one. But one strong link does not make a comprehensive service network. A client who receives a communication system is better equipped than one who does not. This client is also one who will more keenly sense (and express) the need for mobility, education, a vocation and independence.

There are services, programs, organizations, and professionals which can help address these needs. But who or what guides a client through this labyrinth of needs and their appropriate services? I have often wondered what enables disabled clients or their parents to find the appropriate services. Is it a finely tuned referral system, sound professional advice, chance discovery, or sheer perseverance on the part of the client or his/her parent?

The institutionalization of a service program (a name on an office door, some special equipment in a bright new room) is not necessarily equivalent to the meeting of needs. Comprehensive and wholistic service provision requires reaching out, maybe even advertising and taking the service to the need. In this regard, I was pleased to see a report in RESNA's 1985 conference proceeding of "The Nation's First

Mobile Rehabilitation Engineering Unit" (Law and Schuch, 1985) used in Virginia (U.S.A.). A similar mobile clinic has been "on the road" for almost three years in Ontario's Eastern Region (Dehoux, Ware, Torrance and Langill, 1984). Its role has been one of service delivery, education and community resource development. These and similar outreach programs provide an exciting new dimension to service delivery.

The creation of a wholistic-coordinated service network requires that students, whether students of AAC, of rehabilitation, or of special education, learn about their fellow disciplines. It may also require that these disciplines themselves mark off their respective territories more clearly so that the

adage about good fences and good neighbours can work its wondrous ways.

The institutionalization of AAC may be a proper catalyst to a reconsideration of the different roles, and educational prerogatives, of the many disciplines contributing to the service that is aimed at the fullest functioning and independence of disabled persons.

### What's in a Name?

When an infant masters the skills of locomotion or communication we say that s/he learns to walk or learns to speak, and when a student is in training for a role in the work force we call this education. But when a physically disabled child is learning how to walk, commun-

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- *Communicating with Blissymbolics*, (S. McNaughton, ed). \$23.00
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\*Available only with purchase of (A).



icate or carry out a job we call it (re)habilitation. *Webster's Seventh New Collegiate Dictionary* defines habilitate as "capacitate", or as "to qualify oneself". I do by no means intend to belittle the (greater) effort and expertise that is required for the latter forms of learning and education. But it seems odd that able bodied children can just learn while disabled children must qualify themselves or be capacitated. Isn't learning how, for example, to use a DEC talker a way of learning to talk?

The insidious effect of these terms, that carry the veiled message of "making the best of a bad thing", is that they diminish our clients, ourselves and our joint efforts. We can acknowledge the differences between disabled and nondisabled people, recognize the different skills to be acquired and the different developmental paths that are to be followed. But should we not also emphasize the basic continuity of the dimensions of human functioning? There are persons who can walk on tightropes, break olympic records, and run marathons. There are also people who walk, waddle, and totter. There are people who walk with electrical stimulation, and people who walk with a limp, a cane, or with crutches. There are people who do not walk, who ride or are driven around. This is an example of one of many dimensional continua of human functioning. It is deceptively easy to divide these continua in three parts: supra-normal, normal and subnormal. And it is easier still for our thinking, our research, and our service to become limited to only a small part of the total continuum. The name of our specialty reflects this shrinking of our view, our role, and hence our aspirations.

It is up to us to make our specialty into one that is capable of encompassing the full range of human functioning (including the supra- and sub-ends of the continua) and thus extend the now limited "normal" range to the full and varied continuum. Our own aging process is likely to boost this "normalization" trend.

### Service Issues

Much has been said about com-

munity based support systems. The need is obvious but there does not appear to be proper implementation to match this need. Parent and client involvement in service and research not just as recipients or subjects but as planners, critics, and initiators — this too is a much talked about issue. On the one hand, the spinal cord injury advocacy group is an example of a group that through its strident campaign (i.e. cure not care) is making a distinct impact. But on the other hand, ISAAC, an organization created with the goal of bringing together consumers and the various professionals involved in AAC, is having difficulty gaining consumer members. Relevant, parent- or client-driven ways of working together are yet to be developed. For disabled people, who have for so long been rewarded for being good patients and low profile citizens, this may be difficult.

In view of the institutionalization mentioned earlier, I have thought of the following scheme. University boards often have members who represent the community. Departments do not have such boards, but maybe AAC (and rehab) departments should have boards with representatives from the community (users, manufacturers, other disciplines).

The issue of dovetailing service, research, support and funding activities on a local, regional or national level looms as a herculean task. I must admit to considerable ignorance about the details of the operation of governmental and private programs in the health, social, vocational and (less so) educational fields. But the sheer number of government agencies and programs (whether national, provincial or municipal) causes me to marvel at how the services of disabled persons are coordinated at all. When I read an article by Dr. David Symington (1984) entitled "Integrating Disabled Canadians — Are We Ready?", which stated that the cost of institutionalization and income support programs cannot be determined other than by an estimate with a six billion dollar range (nationally), I was left with the uncomfortable feeling that, if in a

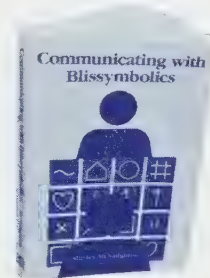
system the cost of a service cannot be accurately determined then, neither can the waste.

As I said in the opening paragraph, the solution to this test of our creativity must ideally come from us all. A field with as wide a variety of needs and services cannot be organized into a practical, less restrictive, integrated and comprehensive network by clinician, advocates, academicians, or bureaucrats working alone. It may be possible if all pull together and preferably in more or less the same direction. □

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## New From BCI



Edited by  
Shirley McNaughton

This new textbook is a reference and resource book for professionals, libraries and students. Included are sections relating to:

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- vocabulary selection
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# Augmentative Communication



## Worldsign Update

by David Orcutt

*The first article on Worldsign in Communicating Together was written by Anne Warrick and appeared in the September 1984 issue, Vol. 2, No. 3. The following article is written by David Orcutt, the creator of Worldsign. Mr. Orcutt is a multi-media communicator whose kinesthetically based graphic language has elements of bodily motion or gestures. In 1984 he published The Worldsign Symbolbook.*

Worldsign is a multi-sensory system of communication which takes three forms: a signed form, a written form and a form of symbol animation. In addition, sound can be combined, thus further increasing the sensory range. Because of its multi-sensory capacity and because the symbols used are concept-based, instead of being syllabic or alphabetic, wide areas of the brain are involved in this communication process.

You are probably familiar with signing and therefore this form can be easily imagined. However, without showing you the actual symbol animation it may not be possible to fully demonstrate that symbol animation is a distinctive form which has very different characteristics and potentiality than the other two forms of Worldsign. In the symbol animation form, the symbols move, as well as vary in intensity and duration. Because of this they are perceived more accurately than if they were static.


Each new innovation in writing surfaces and writing tools has had enormous influence on the writing itself. For example, writing surfaces such as clay, stone, papyrus, palm leaves, paper, and writing tools such as sticks with blunted ends, wedges, chisels, brushes, pens, pencils, moveable type, typewriters, word processors have all greatly influenced the writing process.

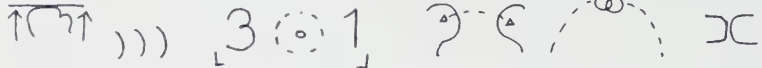
I perceive the screen, whether

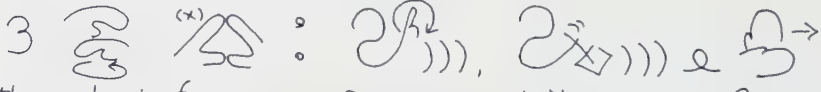
it is a screen for motion picture projection or television, to be a potential "writing surface". I also perceive a number of clever devices, such as the motion picture camera and projector, the video camera and home video units, computers with a capacity for animation and inter-active video disc technology, as being potential writing tools. That these new writing surfaces and potential writing tools have thus far been limited linguistically to the older techniques of static print is only because there was no available language which was compatible with the inherent capabilities of the newer technology. I am hopeful that Worldsign will be a contribution in the area of new mass media.


The way in which images are

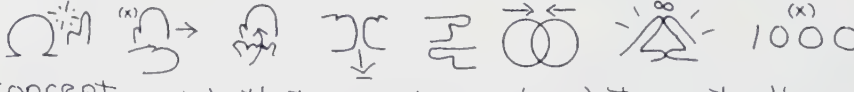
related to each other in film/video media is remarkably similar around the world. A Japanese, Indian or American film/video director will use the same "grammar" in the way montage, fades, dissolves, pans, zooms, close ups, long shots, superimpositions, pace of editing are incorporated into their productions. In developing the symbol animation form, it is very important to take advantage of the fact that the way images are related on film or video is part of the cultural knowledge of all the people on this planet who have been exposed to film and television. Therefore, in symbol animation, the Worldsign symbols can face or move in any direction, advance or recede, slowly or rapidly appear and disappear and exist with time-varying durations,


  
Worldsign is an interconnected, interacting (mutually together)


  
supporting (3 inside 1) communication system with

  
three basic forms: Signing, Writing and Symbol

  
Animation (Life-into). Worldsign uses approximately 700 basic

  
concept (idea) symbols that can be combined to create thousands

  
of (combined symbols). All symbols can be in the form

  
of (manual) signs and each can be specially animated.



change size and shape, change in intensity of light and colour, become "insistent" by blinking off and on, dissolve or "keyframe" into other symbols or images, superimpose. They can also be effectively combined with thousands of images and sounds which are recognized around the world.

Worldsign provides the possibility of choosing from a wide range of strategies which are intrinsic to it. These strategies include the sole use of a small vocabulary of highly iconic and readily learnable manual signs, a combined use of sign and speech, the use of a written symbol system based on manual signs (these symbols could be used on a symbol board if desired), the combined use of symbols with pictures, a combined use of signs, symbols, pictures and speech as well as use of symbol animation to enhance the learnability of the signed and written forms of Worldsign.

There appears to be within the field of augmentative and alternative communication a growing acceptance of the use of a multiple system approach. There is also an awareness that when the systems used are very different and not mutually supportive, the workload required to learn more than one system is excessive.

Thus far, my experience in teaching Worldsign and in observing Worldsign being taught to a group of second grade children is that it is easier to teach the signing and written forms together than to teach either one separately. This is because one form reinforces the other. My expectation is that the third form, symbol animation, combined with sound and imagery, will vastly increase the learnability of the first and second forms. For example, knowing signing enables you to have a kinesthetic experience when reading the written form. Similarly, once you are familiar with symbol animation, when you read Worldsign you can imagine the symbols as being animated and you will therefore find them more meaningful.

The original basis for Worldsign is signing, as practiced by the Deaf and by North American native people. Sign languages are truly

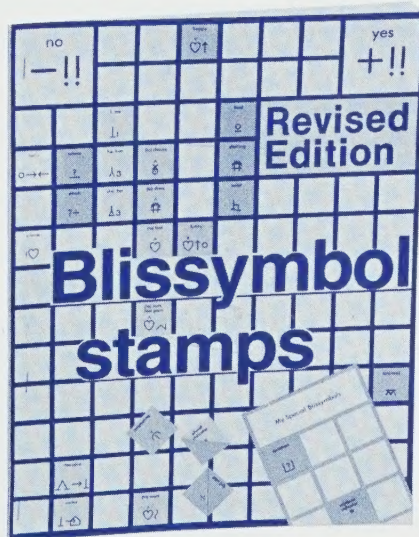
animated languages and it was therefore only natural that the written form of Worldsign should reflect a bias for animation. In the beginning stages of development, this bias operated unconsciously. Now that the process is conscious and there is a realization that much of the usefulness of Worldsign is dependent on its triune structure (three systems in one), there is now a need to check every symbol and its corresponding sign for compatibility between all three forms. A few changes are indicated, but the "inner logic" of the system is sufficiently established so that these changes can be naturally accommodated.

The utilization of Worldsign for micro-computers is an obvious next step. This should include provision for both print-outs of static symbols as well as symbol animation. I can envision English-Canadian deaf people and French-Canadian deaf people being able to correspond with each other and to read the same publications. I can imagine also that they would soon discover that this same process could be extended to deaf people world-wide.

Children, who can learn Worldsign very rapidly, could write, or sign, to other children around the world. I believe that Worldsign offers unique opportunities for world communication.

At present the Worldsign Communication Society is extensively involved in making a 30-minute video documentary on Symbol Animation. Part of this project is the documentation of some very low budget symbol animation techniques. There is also the likelihood of Worldsign becoming available for computer usage where, in addition to being able to make print-outs of static symbols one could also generate animated symbols which could be stored or shared in the form of floppy discs, hard discs or simultaneously recorded video tape. All of this which I am describing will in a relatively near future be sufficiently flexible and inexpensive so that a children's hospital unit, for example, could easily make their own productions for the needs of specific children, productions in which the children themselves could creatively participate. □

## New Stamp Book



### Revised Edition of the Blissymbol Stamps

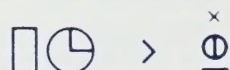
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Contains the original 1400 stamps  
Plus:

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- Sentences and phrases for interaction
- Other frequently requested sentences and combined symbols



## Schedule of Events



### BCI Workshops

BCI elementary training sessions are held throughout the year and provide professionals and families an opportunity to learn about Blissymbolics. The workshop includes 30 hours of lectures, and group and individual assignments.

#### Forthcoming Workshops:

##### In Quebec

• December 3 - 6, 1985 in Quebec City

Contact: Ms. Diane Milliard, APCQI, 525 boul. Hamel est, Suite A-50, Quebec, P.Q., Canada G1M 2S8.

Telephone: (418) 529-5371

##### In Alberta

• January 30 - February 1, 1986 in Calgary

Contact: Mrs. Loretta Biasutti, Mount Royal College, 4825 Richard Road SW, Calgary, Alberta, Canada T3E 6K6.

##### In New Zealand

• January 21 - 23, 1986 in Christchurch

Contact: Ms. Fleur Lynn, 75 Grampian Street, Christchurch 5, New Zealand.

### BCI Special Interest Seminars

The Augmentative and Alternative Communication in Education (AACE) program of BCI will hold a series of one-day seminars three times during the year on a variety of topics related to the application of augmentative communication. With the availability of the *Independent Study Program*, one day in each group will be "A Practicum to the Blissymbolics Independent Study Program".

##### In Ontario

- March, 1986 in Toronto
- July, 1986 in Toronto
- October, 1986 in Toronto

Contact: BCI, 350 Rumsey Road, Toronto, Ontario M4G 1R8.

### 4th International Conference on Augmentative and Alternative Communication

#### In United Kingdom

• September 21 - 24, 1986, in Cardiff, Wales

Contact: Communication Aids Centre, Boulton Road, West Bromwich, West Midlands, United Kingdom, B70 6NN.

### Trace Center Workshops

#### Microcomputers for Handicapped Individuals

##### In Connecticut

• March 7 - 8, 1986

Hosted by the United Cerebral Palsy Association of the Greater Waterbury Area, Inc., Waterbury, Connecticut.

##### In Oklahoma

• April 11 - 12, 1986

Hosted by the United Cerebral Palsy Association of Cleveland County, Inc., Norman, Oklahoma.

Contact: Workshop Co-ordinator, Trace Center, Waisman Center, 1500 Highland Avenue, University of Wisconsin-Madison, Madison, WI 53705-2280, U.S.A.

Telephone: (608) 262-6966

## Readers Write



Dear Communicating Together,

In our school district we have a severely physically handicapped non-verbal child who communicates using Morse Code and a computer. She is 12 years old and presently in grade six. I am wondering if you could put us in touch with any other schools who have non-verbal, physically handicapped students in regular upper elementary and secondary programs.

I think it would be very beneficial for us to be able to share ideas with other schools, and learn from each other's experiences how best to maximize the educational experiences of these students.

Thank you very much for your help.

Yours truly,

Gail M. Cox  
Speech-Language Pathologist  
Speech and Language Services  
School District No. 14  
(Southern Okanagan)  
P.O. Box 280  
Oliver, British Columbia V0H 1T0

### For Your Information

The Blissymbol components used in section headings and design are shown here with accompanying words.

person 	our, ours 	public 	woman 	man 	family 	friend 	(to) say, tell 
question 	(to) share 	(to) teach 	(to) learn 	(to) read 	(to) write 	Blissymbol 	along with 
(to) communicate 	science 	knowledge 	opinion 	event 	idea 	(to) help, aid 	and, also 
machine 	computer 	thing 	schedule 	paper, page 	book 	plural indicator 	combine indicator 
suggestion 	tired 	international 	trip, travel 	attention 	news 	from 	command 



# A SERIOUS SOLUTION...TO A SERIOUS PROBLEM



## The new ACS SpeechPAC<sup>TM</sup>/Epson

**The new ACS SpeechPAC/Epson is a technological breakthrough in design, function, and adaptation. It provides the nonverbal (child and adult) with communication capabilities never before available. SpeechPAC/Epson is what you need it to be.**

**AS A COMMUNICATOR:** Turn it on and SpeechPAC automatically becomes the easiest to use, most advanced portable communication system available for nonverbal handicapped persons. It is 100% user programmable and can store hundreds of key sentences in memory for quick transfer to voice out-put or print.

**TEXT TO SPEECH:** Type any English words, numbers, sentences or paragraph; press TALK and SpeechPAC speaks out the entry. There are no complicated procedures or instructions to learn.

**EASY TO PROGRAM:** Simply press one button and the screen displays the three easy instructions for programming. No computer knowledge is necessary to use the SpeechPAC/Epson as a communication system.

**LOGICAL LETTER CODING:** An ACS exclusive program for non-verbal handicapped persons. "LOLEC"® gives a quick, uncomplicated method for the user to program and retrieve complete sentences (up to 250 characters long) from memory with a single key stroke. *EXAMPLE:* Every sentence has a "Logical Thought" and every thought has a "Logical Letter Code." Program DW to SPEAK "I would like to have a *DRINK* of *WATER*" Once programmed, the user simply enters DW, pushes TALK and the voice output is the entire sentence. Text to speech and numerous letter codes can be mixed together in any random sequence to create unlimited vocabulary potential.

**MEMORY CAPACITY:** Several hundred sentences can be stored for retrieval by "Logical Letter Coding". The SpeechPAC/Epson can store approximately 10,000 characters (letters) and is expandable to store 26,000 characters.

**AS A COMPUTER:** Push one button and you have access to all the features of the EPSON MicroComputer with: word processing, computer graphics, games (limited), calculator functions, musical tone generator, and hook up to TV set.

**AS AN EDUCATIONAL AND TRAINING AID:** With the Telephone Modem, the Epson connects to other computers and national information centers throughout the United States. This vast knowledge can be brought right into your own home.

**SCANNING:** For the severely physically handicapped, the ACS SpeechPAC/Epson can be activated by numerous types of gross motor switches. A custom ACS "Scanning Talk"® program presents letters and codes (on the screen) in the order of most frequent use. All functions of voice output, print, microcassette, and all computer functions can be controlled through scanning.

**SPEECHPAC FEATURES:** SpeechPAC talks for approximately 24 hours using the rechargeable batteries of the Epson computer. You can create Male, Female, and Child like voices. Control of Speed, Voice Type, Volume and Printer can be performed with only one finger (or head pointer) or scanning.

**ACCESSORIES:** Wheelchair Mounting Kit, Keyguards, Carrying Case, Telephone Modem, External Amplifiers, Emulator for connection to Apple or Franklin computers, Protective moisture proof keyboard cover.

**ADAPTATIONS:** If you already own an EpsonHX-20 you can make it talk and expand its memory with the purchase of only the ACS SpeechPAC and ACS copyrighted software program. Easy to snap together.

**SIZE:** 8½ x 14½ x 1¾" **WEIGHT:** 5 pounds

**PRICE:** SpeechPAC/Epson - \$2,195.00 U.S.—plus shipping/handling. SpeechPAC/Epson - \$2,850.00 Canada—plus shipping/handling. Price subject to change depending on currency exchange rates.

**Write today for free additional information.**

In United States:

## ACS

Adaptive Communication Systems, Inc.  
Box 124400 Pittsburgh, PA 15261  
412 264-2288

In Canada:

## BETACOM

6160 VanDen Abeele  
St. Laurent, Quebec H4S 1R9  
514 335-1058





## Happy Birthday Sweet 16!

ZYGO Model 16 that is. You're 10 years old and still scanning your way through assessments, evaluations, prescriptions and training. That's a tall order you're filling. You deserve a party!

You also set our company off on quite an adventure in developing the Model 100, scanWRITER, Eye Transfer, computer access and all those switches. And there's so much more to come.

You don't show your age at all. You're as good now as that day 10 years ago when you went to your first client. You're a classic; the industry standard.

Model 16.  
Communication starts here!



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